

*What is claimed is:*

1. A device with a stator having high performance flat coils comprising:

5 a stator tooth portion being punched by silicon steel pieces and having a tooth face having a cambered surface, an tooth root end extending backwards from a center of the cambered surface; a distal end of the tooth root end being extended outwards with a tooth root distal end which is not larger than a maximum width of the tooth root end;

10 a T shape wire groove seat being made by insulator and having a T shape; a longitudinal vertical post thereof providing to be engaged with the coils of a motor or a generator; an interior of the longitudinal vertical post being hollow and being engagable with the stator tooth root end; and the hollow portion being a hollow end of the wire groove seat; and

15 a flat coil being a flat wire; a thickness of the flat wire being determined by a depth of the longitudinal vertical post of the T shape wire groove seat divided by the number of winds of a rated rotary speed so as to acquire a thickness dividing number; a thickness of the flat wire should be smaller than a thickness dividing number so as to assure that a  
20 total thickness of the flat coil after winding is slightly smaller than the depth of the longitudinal vertical post of the T shape wire groove seat; the width of the flat coil being slightly smaller than a width of the winding space of the T shape wire groove seat; the flat wire being used in a standing form and being used with a "winding machine" for winding  
25 with a layer or multiple layer of windings; the shaped flat coil being

further engaged with the longitudinal vertical post of the T shape wire groove seat; and moreover, a distal end of the flat coil being installed with an insulating piece.

2. The device with a stator having high performance flat coils as claimed  
5 in claim 1, wherein the stator tooth portion is a single outer stator tooth portion of a motor or a generator.

3. The device with a stator having high performance flat coils as claimed  
in claim 1, wherein the stator tooth portion is a single inner stator tooth portion of a motor or a generator.

10 4. The device with a stator having high performance flat coils as claimed in claim 1, wherein the stator tooth portion is an integral closed and inseparable outer stator tooth portion.

5. The device with a stator having high performance flat coils as claimed  
15 in claim 1, wherein the stator tooth portion is an integral closed and inseparable inner stator tooth portion.

6. The device with a stator having high performance flat coils as claimed in claim 1, wherein the flat coil is the exciting coil of a motor.

7. The device with a stator having high performance flat coils as claimed  
20 in claim 1, wherein the flat coil is the exciting coil of an induced coil in a generator.